

FIG. 1



FIG. 2

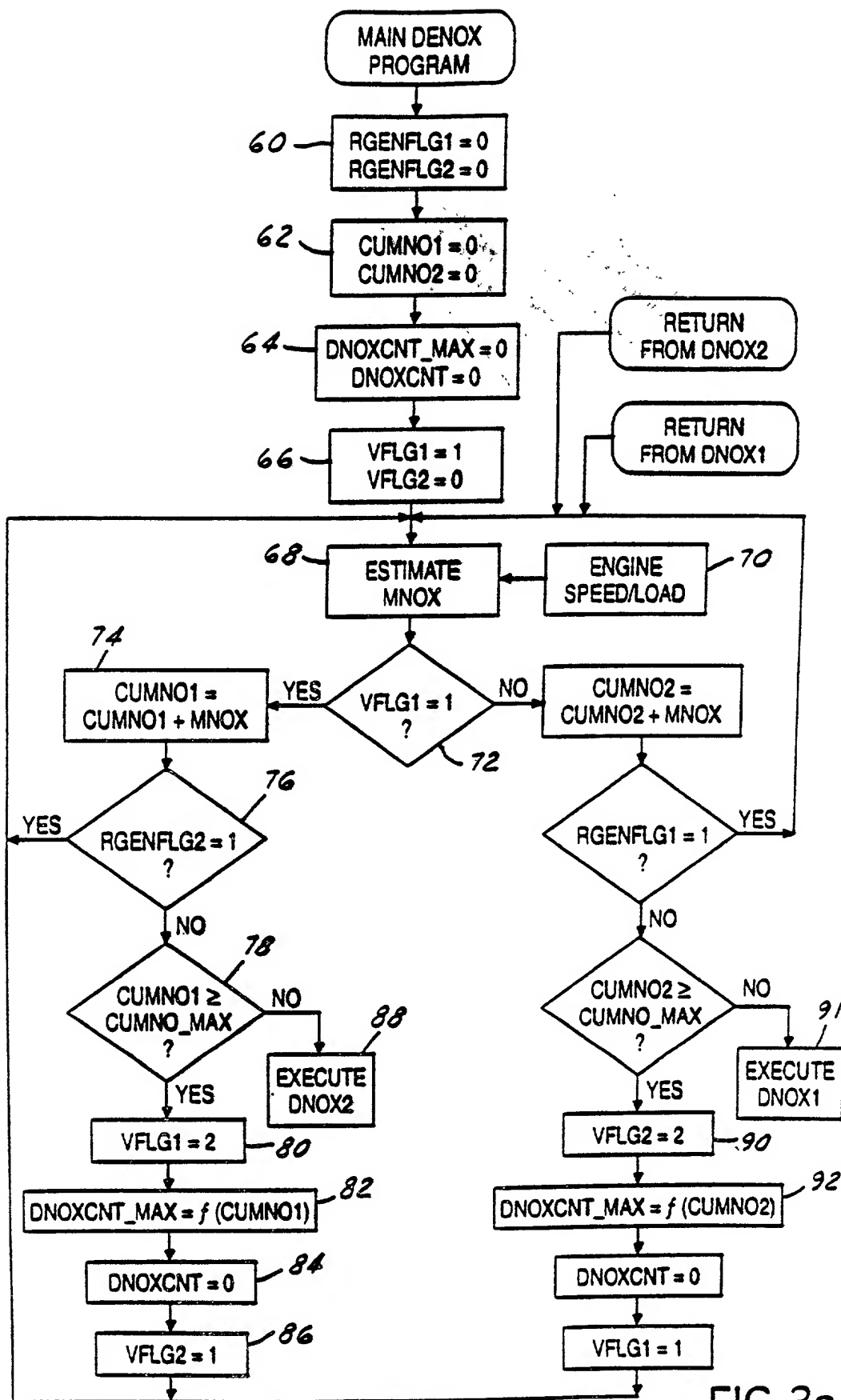


FIG. 3a

RETURN TO MAIN
DENOX PROGRAM 110

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graph TD
    Start([MAIN PM AND SOXREG PROGRAM]) --> Init[RGENFLG1 = 0  
RGENFLG2 = 0]
    Init --> CumPMInit[CUMPM1 = 0  
CUMPM2 = 0]
    CumPMInit --> CumSOXInit[CUMSOX1 = 0  
CUMSOX2 = 0]
    CumSOXInit --> VFLGInit[VFLG1 = 1  
VFLG2 = 0]
    
    VFLGInit --> LoopStart(( ))
    ReturnSOXREG2([RETURN FROM SOXREG2]) --> LoopStart
    ReturnSOXREG1([RETURN FROM SOXREG1]) --> LoopStart
    
    subgraph MainLoop [ ]
        direction TB
        EstMPM[ESTIMATE MPM] --> EstMSOX[ESTIMATE MSOX]
        EngSpeedLoad[ENGINE SPEED/LOAD] --> EstMPM
        EngFuelFlow[ENGINE FUEL FLOW] --> EstMSOX
        
        VFLG1Eq1{VFLG1 = 1 ?}
        
        LeftPath[CUMPM1 = CUMPM1 + MPM  
CUMSOX1 = CUMSOX1 + MSOX]
        RightPath[CUMPM2 = CUMPM2 + MPM  
CUMSOX2 = CUMSOX2 + MSOX]
        
        LeftMaxCheck{CUMPM1 ≥ CUMPM1_MAX ?}
        RightMaxCheck{CUMPM2 ≥ CUMPM2_MAX ?}
        
        LeftSOXMaxCheck{CUMSOX1 ≥ CUMSOX1_MAX ?}
        RightSOXMaxCheck{CUMSOX2 ≥ CUMSOX2_MAX ?}
        
        ExecPMReg1[EXECUTE PMREG1]
        ExecPMReg2[EXECUTE PMREG2]
        
        LeftPath --> LeftMaxCheck
        LeftMaxCheck -- YES --> ExecPMReg1
        LeftMaxCheck -- NO --> LeftSOXMaxCheck
        LeftSOXMaxCheck -- YES --> ExecPMReg1
        LeftSOXMaxCheck -- NO --> LoopStart
        
        RightPath --> RightMaxCheck
        RightMaxCheck -- YES --> ExecPMReg2
        RightMaxCheck -- NO --> RightSOXMaxCheck
        RightSOXMaxCheck -- YES --> ExecPMReg2
        RightSOXMaxCheck -- NO --> LoopStart
    end
    
    LoopStart --> EstMPM

```

FIG. 4a

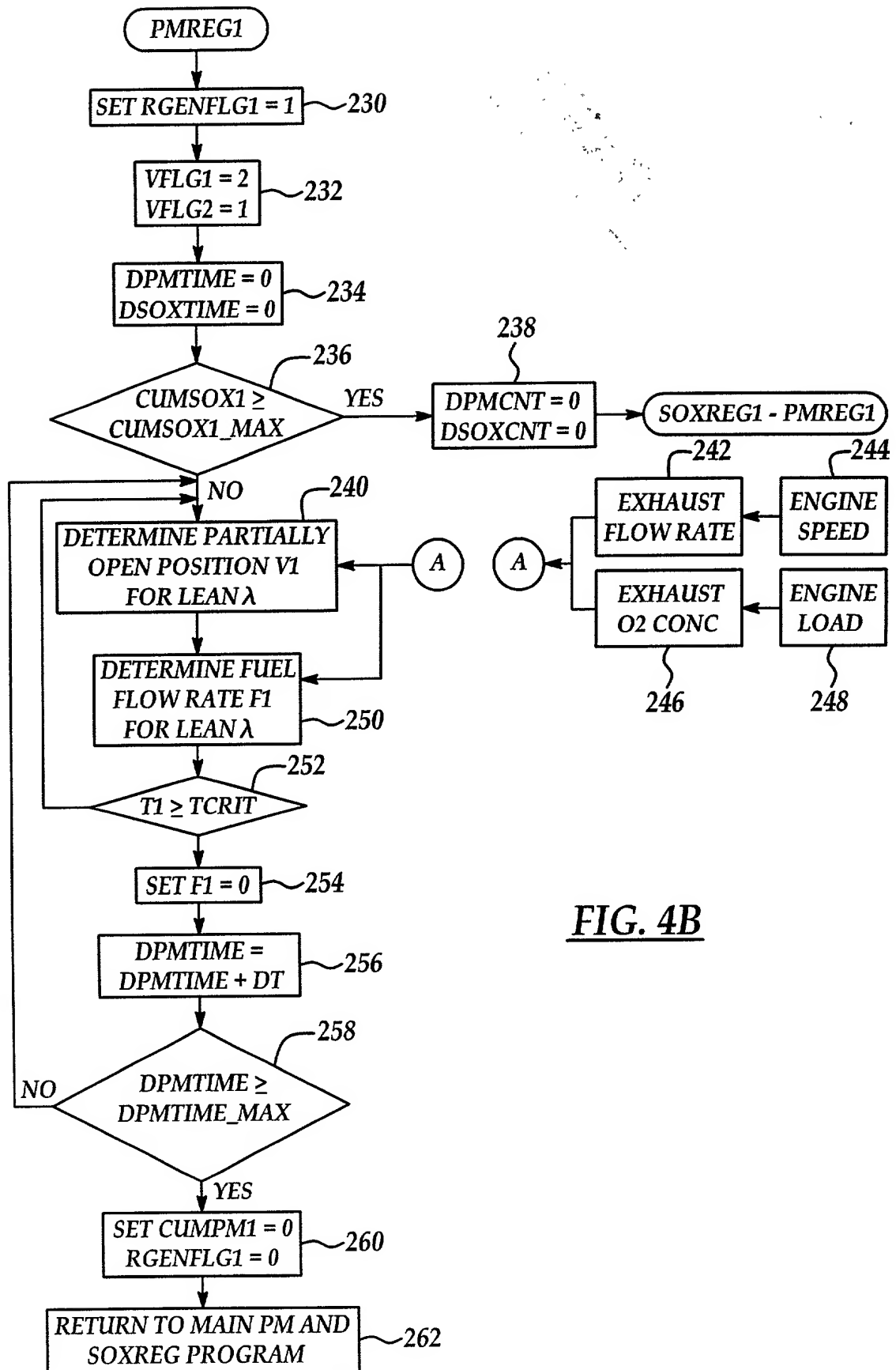


FIG. 4B

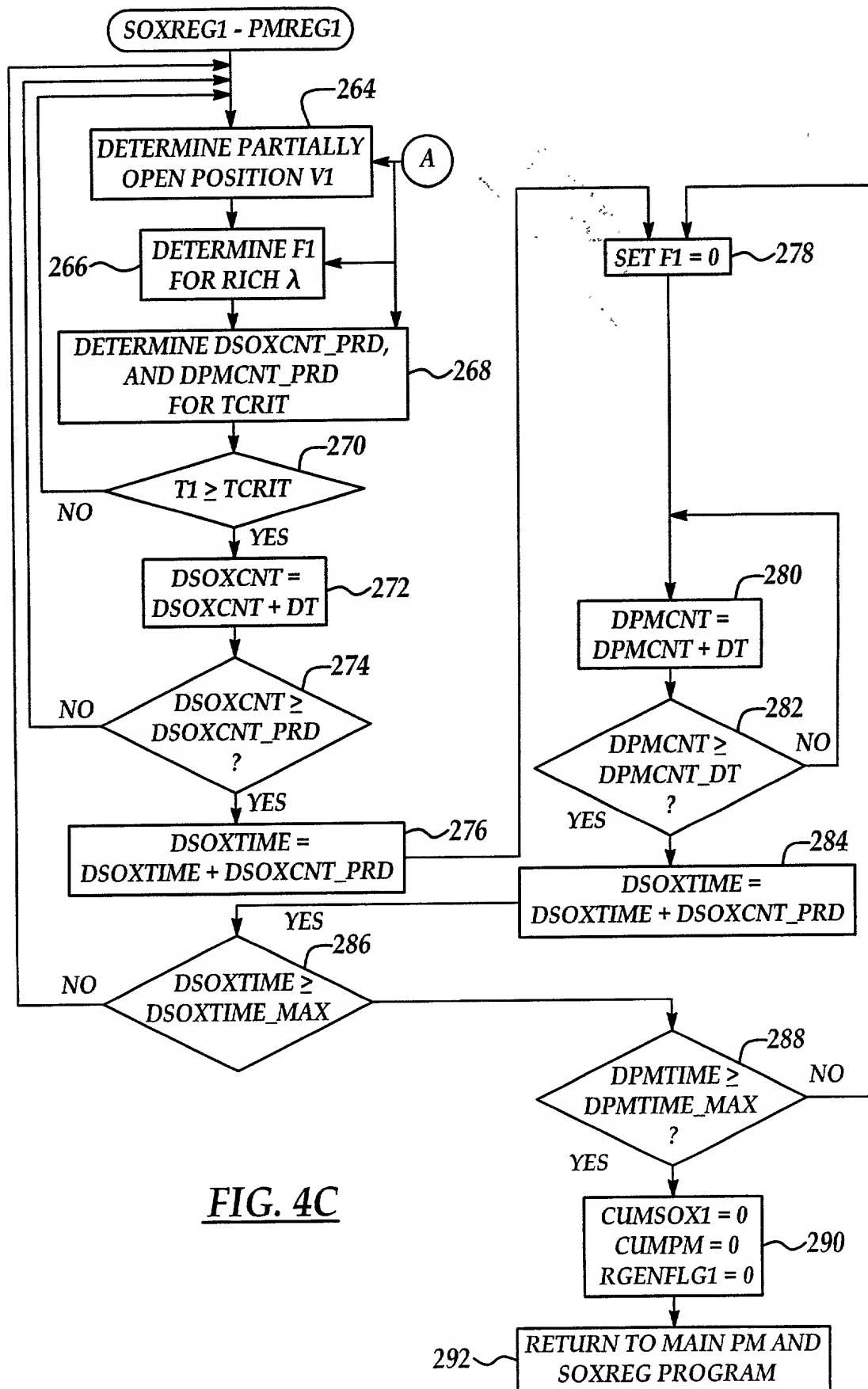


FIG. 4C

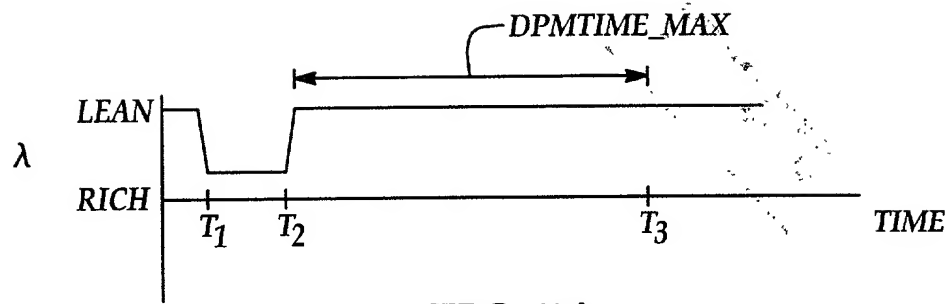


FIG. 5A

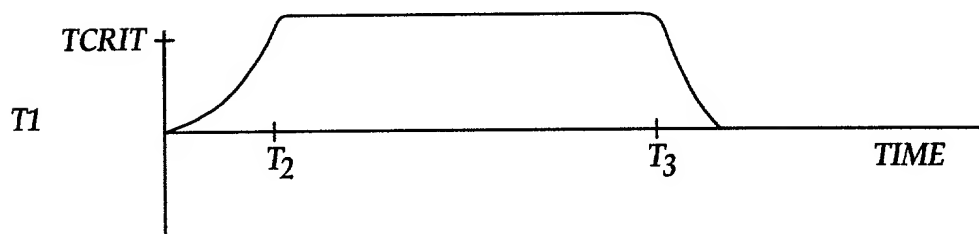


FIG. 5B

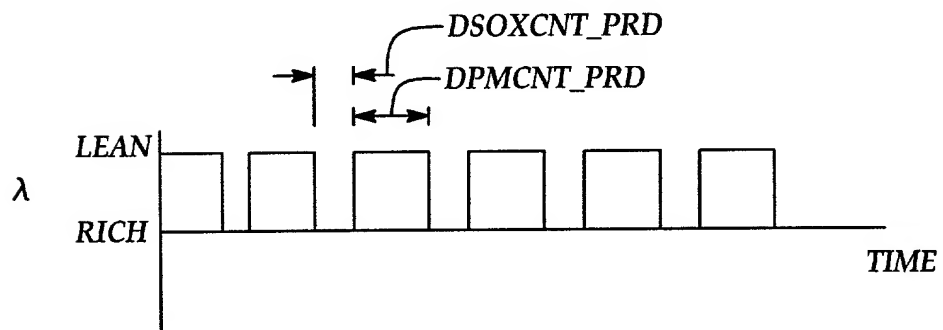


FIG. 6A

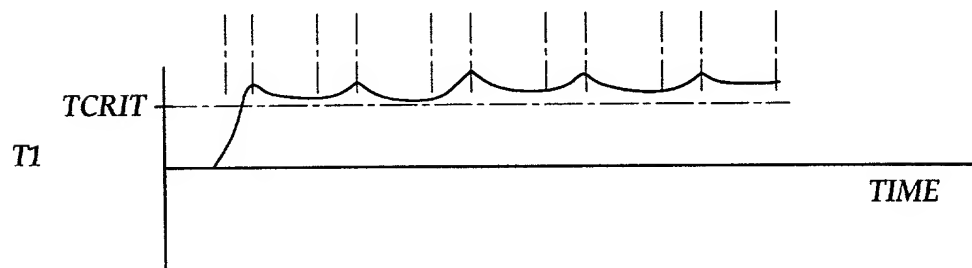


FIG. 6B